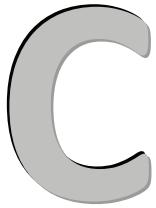

Knowledge Check Answers

Chapter 2 Quality Assurance Program Answers

1. What determines the lot size for a specified material accepted under the Statistical QA Program?

   D. A and B

2. A normal lot is represented by how many test samples?

   D. 4

3. The Producer's Technician is responsible for making batch adjustments.

   A. True

4. The job-mix formula is approved by the:

   C. District Materials Engineer

5. The Project Inspector is responsible for the submission of the job-mix formula.

   B. False

6. One of the duties of the District Materials Engineer's CMA staff technician is to provide technical guidance to the Producer's Technician.

   A. True

7. The inspection, sampling, and testing of the aggregates for conformance with the VDOT Specifications are the responsibilities of the:

   C. Producer's Technician

8. Must the Producer's Technician in a plant producing Aggregate Base, Subbase and Select Material, Type I be certified CMA Technicians?

   A. Yes

9. When must the job-mix formula be submitted by the Producer?

   Before production begins.

10. How long does the Department have to evaluate a job-mix formula change?

    Up to one week.

11. A system that allows resampling and retesting where there is doubt that the original test results are valid is the:

    A. Referee System

12. A chart that is set up to alert the Producer when to investigate his process is a Control Chart.

    A. True

13. The job-mix Formula for Aggregate Bases, Subbases, and Select Material, Type I is chosen from the:

    B. Design Range

14. In the production of cement stabilized aggregate, no one sample shall have a cement content more than 1.3 percent below that stated on the job-mix formula.

    B. False

15. Is it permissible to accept Central Mix Aggregate by visual inspection?

    B. No

16. Who approves the source and quality of materials for use in Central Mix Aggregates?

    The Materials Division

17. Who is required to furnish a plant laboratory?

    The Producer

18. The job acceptance sample for central-mix aggregate bases, subbases and select material is taken from:

    B. Mini-stockpile and D. Truck

19. What is the difference in taking a sample of stabilized and non-stabilized material?

    Non-stabilized material is sampled when the ton comes up for testing. Stabilized material is tested for cement content when the ton comes up and then the cement is cut off and the sample is pulled from the next truck that has no cement in the mixture for gradation.

20. Does the Plant Quality Control Technician run job acceptance samples when the producer is stockpiling?

    B. No

Chapter 3 Sampling and Testing Aggregates

Answers

1. The fine gradation is washed over the:

   D. No. 200 (75 µm) sieve

2. The sieve size that separates the coarse material from the fine material is the:

   B. No. 10 (2.00 mm) sieve

3. The fine gradation sample should weigh between:

   C. 125 and 200 grams

4. A process in which an aggregate is separated into its various sizes by passing it through screens of various openings for the purpose of determining the distribution of the quantities separated is:

   B. Sieve analysis

5. The minimum dry weight of a sample of central mix aggregate that contains +19.0 mm material should be:

   C. 5000 grams

6. Two acceptable ways of splitting a sample are by a sample splitter and by the quartering method.

   A. True

7. What is the temperature range at which the fine gradation is dried?

   230 ± 9° F (110 ± 5° C)

8. The fine material is shaken for how many minutes?

   7 to 10

9. The total sample is computed to the nearest_____percent?

   Tenth

10. The numerical difference between the liquid limit and plastic limit is the plasticity index.

    A. True

11. The liquid limit and plastic limit tests are run on material passing the:

    B. No. 40 sieve (425 µm)

12. The moisture content at which a soil changes from a semi-solid to a plastic state is the liquid limit.

    B. False

13. In determining the liquid limit and plastic limit, the portion of the wet sample used must be dried at a temperature not to exceed 140°F (60°C) .

    A. True

14. Which tests are performed on Dense Graded Aggregates?

    Gradation, Liquid Limit and Plastic Limit.

15. What are the requirements for water used in the liquid limit and plastic limit test?

    Distilled and demineralized.

16. How many blows per second is the cup on the liquid limit device dropped?

    two per second

17. To determine the moisture content in the liquid limit test a slice of soil approximately the width of the spatula extending from edge to edge of the soil cake at right angles to the groove, and including that portion that flowed together must be taken.

    True

18. When determining the plastic limit, the soil is rolled to a thread of 1/8 inch (3.1 mm).

19. VDOT Specifications require that Central Mixed Aggregate be shipped at optimum moisture _____

    ± 2

Chapter 3 Sampling and Testing Aggregates

Problem No.1

Complete the following moisture determination problem and give the moisture content in percent.

Dish & Wet Material 700 grams
Dish & Dry Material 680 grams
Dish 200 grams

$$\begin{array}{cc} 700 & 680 \\ \underline{-200} & \underline{-200} \\ 500 & 480 \end{array} \qquad \frac{500 - 480}{480} \times 100 = \frac{20}{480} \times 100 = 0.042 \times 100 = 4.2\%$$

Chapter 3 Sampling and Testing Aggregates

Problem No.2

In an effort to determine the moisture content of a material, a sample of the material was taken and found to weigh 1346 grams. The sample was then dried to a constant weight and reweighed. The dried sample was found to have a weight of 1240 grams. Using this information, calculate the percent of moisture.

$$\frac{1346 - 1240}{1240} \times 100 \qquad \frac{106}{1240} \times 100 = 0.085 \times 100 = 8.5\ \%$$

Chapter 3 Sampling and Testing Aggregates

Problem No.3

MECHANICAL ANALYSIS OF TOTAL SAMPLE				MECHANICAL ANALYSIS OF SOIL MORTAR			
SIEVE SIZES	GRAMS RETAINED	PERCENT RETAINED	PERCENT PASSING	SIEVE SIZES	GRAMS RETAINED	PERCENT RETAINED	PERCENT PASSING
63.0 mm (2 ½)				63.0 mm (2 ½)			
50.0 mm (2)				50.0 mm (2)			
37.5 mm (1 ½)				37.5 mm (1 ½)			
25.0 mm (1)			**100.0**	25.0 mm (1)			
19.0 mm (3/4)	**252**	**2.7%**	**97.3**	19.0 mm (3/4)			
9.50 mm (3/8)	**2352**	**25.2%**	**72.1**	9.50 mm (3/8)			
4.75 mm (4)	**1241**	**13.3%**	**58.8**	4.75 mm (4)			
2.0 mm (10)	**1017**	**10.9%**	**47.9**	2.0 mm (10)			**100.0**
.850 mm (20)		**10.9%**	**37.0**	.850 mm (20)	**39.7**	**22.8%**	**77.2**
425 mm (40		**6.4%**	**30.6**	425 mm (40	**23.2**	**13.3%**	**63.9**
.250 mm (60)		**3.7%**	**26.9**	.250 mm (60)	**13.4**	**7.7%**	**56.2**
.180 mm (80)		**2.5%**	**24.4**	.180 mm (80)	**9.2**	**5.3%**	**50.9**
.150 mm (100)		**1.8%**	**22.6**	.150 mm (100)	**6.4**	**3.7%**	**47.2**
. 075 mm (200)		**5.2%**	**17.4**	.075 mm (200)	**18.8**	**10.8%**	**36.4**
Total	**9334**	**17.5%**		Total	**174.2**	**36.5%**	

Liquid Limit		Plastic Limit		Physical Characteristics of Soil
Dish No. **14**	No. of Blows **26**	Dish No. **19**		Liquid Limit **27**%
Dish & Wet Soil **87.1**	Dish & Dry Soil **84.1**	Dish & Wet Soil **80.1**	Dish & Dry Soil **78.0**	Plastic Limit **24**%
Dish & Dry Soil **84.1**	Dish **72.8**	Dish & Dry Soil **78.0**	Dish **69.4**	Plasticity Index **3**%
Mass of Water **3.0**	Dry Soil **11.3**	Mass of Water **2.1**	Dry Soil **8.6**	
% Moisture = Mass of Water x 100 = **26.5** Dry Soil		P.L. = Mass of Water x 100 = **24.4** Dry Soil		Optimum Moisture Content Total Soil **6.6** % -4.75 mm (-4)Portion **10.3 %** Maximum Density Total Soil____ kg/m^3(lbs/ft^3) -4 75 mm(- 4)Portion___k/g/m^3(lbs/ft^3)
L.L. = **26.6** = **27**		P.L. = **24**		

Wet Weight = **9847** grams % Moisture **5.5** Moisture Range **4.5% - 8.5%** Absorption 0.3

Chapter 3 Chapter 3 Sampling and Testing Aggregates

Answers

Problem No. 4

MECHANICAL ANALYSIS OF TOTAL SAMPLE				MECHANICAL ANALYSIS OF SOIL MORTAR			
SIEVE SIZES	GRAMS RETAINED	PERCENT RETAINED	PERCENT PASSING	SIEVE SIZES	GRAMS RETAINED	PERCENT RETAINED	PERCENT PASSING
63.0 mm (2 ½)				63.0 mm (2 ½)			
50.0 mm (2)				50.0 mm (2)			
37.5 mm (1 ½)				37.5 mm (1 ½)			
25.0 mm (1)			**100.0**	25.0 mm (1)			
19.0 mm (3/4)	**357**	**5.8%**	**94.2**	19.0 mm (3/4)			
9.50 mm (3/8)	**1448**	**23.6%**	**70.6**	9.50 mm (3/8)			
4.75 mm (4)	**913**	**14.9%**	**55.7**	4.75 mm (4)			
2.0 mm (10)	**1011**	**16.5%**	**39.2**	2.0 mm (10)			**100.0**
.850 mm (20)		**11.9%**	**27.3**	.850 mm (20)	**57.8**	**30.4%**	**69.6**
425 mm (40		**5.1%**	**22.2**	425 mm (40	**24.8**	**13.1%**	**56.5**
.250 mm (60)		**3.3%**	**18.9**	.250 mm (60)	**16.0**	**8.4%**	**48.1**
.180 mm (80)		**1.8%**	**17.1**	.180 mm (80)	**8.7**	**4.6%**	**43.5**
.150 mm (100)		**1.3%**	**15.8**	.150 mm (100)	**6.3**	**3.3%**	**40.2**
. 075 mm (200)		**4.0%**	**11.8**	.075 mm (200)	**19.5**	**10.3%**	**29.9**
Total	**6136**	**11.7%**		Total	**190.0**	**29.9%**	

Liquid Limit		Plastic Limit		Physical Characteristics of Soil
Dish No. **21**	No. of Blows **28**	Dish No. **10**		Liquid Limit **21** %
Dish & Wet Soil **52.1**	Dish & Dry Soil **48.9**	Dish & Wet Soil **79.9**	Dish & Dry Soil **77.8**	Plastic Limit **20** %
Dish & Dry Soil **48.9**	Dish **33.7**	Dish & Dry Soil **77.8**	Dish **67.4**	Plasticity Index **1** %
Mass of Water **3.2**	Dry Soil **15.2**	Mass of Water **2.1**	Dry Soil **10.4**	
% Moisture = Mass of Water x 100 = 21.1 / Dry Soil		P.L. = Mass of Water x 100 = **20.2** / Dry Soil		Optimum Moisture Content Total Soil **6.5** % -4.75mm (-4) Portion **10.5** % Maximum Density Total Soil ____ kg/m^3(lbs/ft^3) - 4.75mm(-4) portion____kg/m^3(lbs/ft^3)
L.L. = **21.4** = **21**		P.L. = **20**		

Wet Weight = **6449** grams % Moisture **5.1** Moisture Range **4.5 – 8.5** Absorption **0.6**

Chapter 3 Sampling and Testing Aggregates

Problem 5

MECHANICAL ANALYSIS OF TOTAL SAMPLE				MECHANICAL ANALYSIS OF SOIL MORTAR			
SIEVE SIZES	GRAMS RETAINED	PERCENT RETAINED	PERCENT PASSING	SIEVE SIZES	GRAMS RETAINED	PERCENT RETAINED	PERCENT PASSING
63.0 mm (2 ½)		%		63.0 mm (2 ½)		%	
50.0 mm (2)		%		50.0 mm (2)		%	
37.5 mm (1 ½)		%		37.5 mm (1 ½)		%	
25.0 mm (1)		%	**100.0**	25.0 mm (1)		%	
19.0 mm (3/4)	**267**	**3.0**%	**97.0**	19.0 mm (3/4)		%	
9.50 mm (3/8)	**2650**	**29.8**%	**67.2**	9.50 mm (3/8)		%	
4.75 mm (4)	**1343**	**15.1**%	**52.1**	4.75 mm (4)		%	
2.0 mm (10)	**1103**	**12.4**%	**39.7**	2.0 mm (10)		%	**100.0**
.850 mm (20)		**8.9**%	**30.8**	.850 mm (20)	**44.6**	**22.3**%	**77.7**
425 mm (40		**5.6**%	**25.2**	425 mm (40	**28.4**	**14.2**%	**63.5**
.250 mm (60)		**3.1**%	**22.1**	.250 mm (60)	**15.8**	**7.9**%	**55.6**
.180 mm (80)		**2.0**%	**20.1**	.180 mm (80)	**10.2**	**5.1**%	**50.5**
.150 mm (100)		**1.5**%	**18.6**	.150 mm (100)	**7.6**	**3.8**%	**46.7**
. 075 mm (200)		**4.2**%	**14.4**	.075 mm (200)	**21.2**	**10.6**%	**36.1**
Total	**8893**	**14.3**%		Total	**200.0**	**36.1**%	

Liquid Limit		Plastic Limit		Physical Characteristics of Soil
Dish No. **3**	No. of Blows **22**	Dish No. **5**		Liquid Limit **21** %
Dish & Wet Soil **88.2**	Dish & Dry Soil **85.4**	Dish & Wet Soil **80.2**	Dish & Dry Soil **78.2**	Plastic Limit **20** %
Dish & Dry Soil **85.4**	Dish **72.0**	Dish & Dry Soil **78.2**	Dish **68.1**	Plasticity Index **1** %
Mass of Water **2.8**	Dry Soil **13.4**	Mass of Water **2.0**	Dry Soil **10.1**	
% Moisture = Mass of Water x 100 = **20.9** Dry Soil		P.L. = Mass of Water x 100 = **19.8** Dry Soil		Optimum Moisture Content Total Soil **6.4** % -4.75 mm (-4) Portion **10.8** % Maximum Density Total Soil _____ kg/m^3(lbs/ft^3) -4.75 mm (-4)Portion___ kg/m^3(lbs/ft^3)
LL = 20.6 = 21.0		P.L. = 20		

Wet Weight = **9418** grams % Moisture **5.9** Moisture Range **4.4 – 8.4** Absorption **0.7**

Chapter 4 Acceptance of Material

Answers

1. What types of Portland Cement are allowed in stabilized Central-Mix aggregates?

   C. Types I, I-P and II

2. What are the specification requirements for water used in cement treated aggregates?

   pH 4.5 to 8.5

3. In the production of cement stabilized aggregate, no one sample shall have a cement content below design by more than ___ percent.

   C. 1.6%

4. If the total adjustment (excluding range adjustment) for the lot is greater than 25 points the failing material has to be removed from the road.

   A. True

5. The maximum time interval between manufacture of cement treated aggregate and final shaping and compaction is 4 hours.

6. Is it permissible to accept central-mix aggregate by visual inspection?

   No

7. It is the Departments policy to require the producer to plot his own Control Charts.

   A. True

8. If the job-mix formula on the 9.5 mm (3/8 in.) sieve is 68% passing, what is the acceptance range?

   58.5 to 77.5

9. Can the acceptance range on a sieve fall outside of the Design Range for that particular sieve?

   yes

Chapter 4 Acceptance of Material

Answers

10. The contractor must accept the price adjustment.

    B. False

11. The ambient air temperature must be at least before production can start.

    C. 40°F

12. A lot is usually an average of:

    D. 4 samples

13. Standard Deviation and variability are the same thing.

    A. True

14. The Referee System can only be implemented by the contractor.

    B. False

Chapter 4 Acceptance of Material

Problem No. 1

Answers

Complete the following test report and calculate the percent of unit price adjustment.

Type Mix - Stabilized Aggregate Base Type I, No. 21A

Sample No. Sieve Size	1	2	3	4	Aver.	Lower	Upper	Job-Mix	P/F
50 mm (2 in.)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	P
25 mm (1 in.)	96.0	100.0	98.5	100.0	98.6	92.0	100.0	97.0	P
9.5 mm (3/8 in.)	70.9	67.3	74.9	62.8	69.0	57.5	76.5	67.0	P
2.00 mm (No. 10)	40.7	39.4	45.0	34.5	39.9	32.0	46.0	39.0	P
425 µm (No. 40)	22.5	21.5	25.4	19.7	22.3	20.0	28.0	24.0	P
75 µm (No.200)	11.2	13.1	10.4	10.8	11.4	8.0	12.0	10.0	P
L.L.	22	19	21	20	21		23.0	23.0	P
P.I.	2	0	1	0	0.8		2.0	2.0	P
Cement	3.9	3.2	2.5	2.7	3.1	3.2		4.0	F

Price Adjustment:

3.2 Lower Acceptance Range
-3.1 Average Cement Content
0.1% Outside Process Tolerance

10 Adjustment for each 1%
x 0.1% Outside process tolerance
1.0% Price adjustment for cement content

Chapter 4 Acceptance of Material
Problem No. 2
Answers

Complete the following test report and calculate the percent of unit price adjustment.

Type Mix - Stabilized Aggregate Base Type I, No. 21A

Sample No. Sieve Size	1	2	3	4	Aver.	Lower	Upper	Job-Mix	P/F
50 mm (2 in.)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	P
25 mm (1 in.)	100.0	98.0	96.0	97.4	97.9	90.0	100.0	95.0	P
9.5 mm (3/8 in.)	70.8	67.1	62.8	66.7	66.9	57.5	76.5	67.0	P
2.00 mm (No. 10)	45.0	34.5	39.4	38.2	39.3	32.0	46.0	39.0	P
425 µm (No. 40)	21.3	25.4	20.8	24.1	22.9	20.0	28.0	24.0	P
75 µm (No.200)	14.1	9.8	11.1	10.2	11.3	8.0	12.0	10.0	P
L.L.	25	20	21	20	22		23.2	23.0	P
P.I.	6	0	1	0	1.8		2.0	2.0	P
Cement	3.3	2.5	2.9	2.9	2.9	3.2		4.0	F

Price Adjustment:

3.2 Lower Acceptance Range
-2.9 Average Cement Content
0.3% Outside Process Tolerance

10 Adjustment for each 1%
x 0.3% Outside process tolerance
3.0% Price adjustment for cement content

Chapter 4 Acceptance of Material

Problem No.3

Answers

Complete the following test report and calculate the percent of unit price adjustment.

Type Mix - Stabilized Aggregate Base Type I, No. 21A

Sample No. Sieve Size	1	2	3	4	Aver.	Lower	Upper	Job-Mix	P/F
50 mm (2 in.)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	P
25 mm (1 in.)	94.2	91.6	94.4	97.1	94.3	89.0	99.0	94.0	P
9.5 mm (3/8 in.)	68.5	67.4	70.6	61.3	67.0	57.5	76.5	67.0	P
2.00 mm (No. 10)	34.2	32.4	34.8	40.9	35.6	27.0	41.0	34.0	P
425 µm (No. 40)	15.8	14.4	14.5	21.6	16.6	12.0	20.0	16.0	P
75 µm (No.200)	8.8	8.7	8.0	9.9	8.9	9.0	13.0	11.0	F
L.L.	21	19	20	29	22		23.0	23.0	P
P.I.	0	0	0	4	1.0		2.0	2.0	P
Cement	3.3	2.7	2.5	3.5	3.0	3.2		4.0	F

Price Adjustment:

No. 200 (75 µm)

9.0	5
-8.9	x 0.1%
0.1%	0.5

Cement:

3.2	10
-3.0	x 0.2%
0.2%	2.0

Total Price Adjustment:

0.5% adjustment on the No. 200 (75 µm) sieve

+2.0% adjustment for cement content

2.5% Total adjustment

Chapter 5 Modified Acceptance Production

Answers

1. What is the rate of sampling under the Modified Acceptance Plan for open-graded aggregates?

   B. one per 1000 tons

2. The sample taken for open graded aggregates accepted under the Modified Acceptance Plan is taken from:

   D. All of the above

3. Does the Quality Control Technician have to be certified?

   B. No

4. Sieve analysis on open-graded aggregates are accumulated.

   A. True

5. All open-graded aggregates must have a job-mix submitted before production can start.

   B. False

Chapter 5 Modified Acceptance Production

Answers

Problem No.1

Check the following sieve analysis of a sample of natural sand for use in concrete not subject to abrasion and determine if it meets Virginia Department of Transportation requirements for Grading "A" Sand. Circle the sieve(s) not passing, if any.

Sieve Size	Cumulative Grams Retained	Cumulative % Retained	% Passing	VDOT Specs. (% Passing)
9.5 mm (3/8 in.)	0.0	0.0	100	100
4.75 mm (No. 4)	16.6	2.9	97	95-100
2.36 mm (No. 8)	64.5	11.3	89	80-100
1.18 mm (No. 16)	214.1	37.4	63	50-85
600µm (No. 30)	389.2	67.9	32	25-60
300 µm (No. 50)	483.0	84.3	16	5-30
150 µm (No. 100)	543.4	94.8	5	0-10
75 µm (No. 200)	565.0	98.6	1.4	0-5
Total Wt.	573.0			

Does this sample pass? **Yes**

Chapter 5 Modified Acceptance Production

Answers

Problem No.2

Check the following sieve analysis of a sample of 57s and determine if it meets Virginia Department of Transportation requirements. Circle the sieve(s) not passing, if any.

Sieve Size	Grams Retained	% Retained	% Passing	VDOT Specs. (% Passing)
37.5 mm (1 1/2 in.)	0.0	0.0	100.0	100
25.0 mm (1 in.)	0.0	0.0	100.0	95 - 100
19.0 mm (3/4 in.)	703.2	6.9	93	
12.5 mm (1/2 in.)	4544.7	44.9	48	25 - 60
9.5 mm (3/8 in.)	2247.8	22.2	26	
4.75 mm (No. 4)	2250.6	22.2	4	0 – 10
2.36 mm (No. 8)	116.1	1.1	3	0 – 5
Total Wt.	10120.7			

Does this sample pass? **Yes**

Appendix A Pay Quantities

Answer

Problem No. 1

A plant produced 406 tons of material at a moisture content of 9.6%. If the optimum moisture was 6.0%, give the weight in tons of stone and moisture that may be paid for.

Step 1. Determine the Total Allowable Moisture

Optimum Moisture + 2% = Total Allowable Moisture
6% + 2% = Total Allowable Moisture
8% = Total Allowable Moisture

Step 2. Determine the Dry Weight of the Aggregate

Tons Shipped / (1 + % Avg. Moist.) = Dry Weight of Aggregate
406 / (1 + 9.6%) = Dry Weight of Aggregate
406 / (1 + .096) = Dry Weight of Aggregate
406 / (1.096) = Dry Weight of Aggregate
370.44 = Dry Weight of Aggregate

Step 3. Determine the Pay Quantity

Dry Weight of Aggregate x (1 + % Allowable Moisture) = Pay Quantity
370.44 x (1 + 8.0%) = Pay Quantity
370.44 x (1 + .08) = Pay Quantity
370.44 x (1.08) = Pay Quantity
400.08 = Pay Quantity

Appendix A Pay Quantities

Answer

Problem No. 2

A plant produced 333 tons of mix at a moisture of 10.6%. If the optimum moisture was 7.0%, give the weight in tons of stone and moisture that may be paid for.

Step 1. Determine the Total Allowable Moisture

Optimum Moisture + 2% = Total Allowable Moisture
7% + 2% = Total Allowable Moisture
9% = Total Allowable Moisture

Step 2. Determine the Dry Weight of the Aggregate

Tons Shipped / (1 + % Avg. Moist.) = Dry Weight of Aggregate
333 / (1 + 10.6%) = Dry Weight of Aggregate
333 / (1 + .106) = Dry Weight of Aggregate
333 / (1.106) = Dry Weight of Aggregate
301.08 = Dry Weight of Aggregate

Step 3. Determine the Pay Quantity

Dry Weight of Aggregate x (1 + % Allowable Moisture) = Pay Quantity
301.08 x (1 + 9.0%) = Pay Quantity
301.08 x (1 + .09) = Pay Quantity
301.08 x (1.09) = Pay Quantity
301.08 x (1.09) = Pay Quantity
328.18 = Pay Quantity

Appendix B VTM-40,Titration

Answers

1. The Producer shall furnish a motorized screen shaker for:

   C. Coarse and fine aggregate gradation analysis.

2. To determine the cement content of cement aggregate mixtures by the Titration Method, samples shall be taken at the:

   B. Completion of mixing.

3. When dealing with sodium hydroxide solution, you should always pour the solution into distilled or demineralized water to prevent a spontaneous reaction.

   A. True.

4. The method used to determine the cement content of cement aggregate mixtures is:

   C. Titration Method.

5. In determining the cement content by the Titration Method, the sample for testing should weigh 600 grams.

   A. True.